UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB2000-0167

July 27, 2000

Lawrence C. Evans
Portland District, Corps of Engineers
Attn: CENWP-OP-GP (Monical)
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Formal Consultation, East Beaver Creek Road Repair, Tillamook County, Oregon (Permit ID No. 99-1074)

Dear Mr. Evans:

Enclosed is the National Marine Fisheries Service's (NMFS) biological opinion for the proposed issuance of a Clean Water Act section 404 permit (Permit ID No. 1999-1074) authorizing the Tillamook County Public Works Department to conduct road repairs at three locations along East Beaver Creek Road in Tillamook County near Hemlock, Oregon. The U.S. Army Corps of Engineers requested formal consultation in a letter dated May 9, 2000. NMFS received the request for consultation and a biological assessment describing the proposed action on May 11, 2000.

This Opinion considers the potential effects of the proposed action on Oregon Coast coho salmon (*Oncorhynchus kisutch)*, which occur in the proposed project area. Oregon Coast coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 24998), and critical habitat was designated on February 16, 2000 (65 FR 7764). NMFS concludes that the proposed action is not likely to jeopardize the subject species, or destroy or adversely modify designated critical habitat. Included in the enclosed Opinion is an incidental take statement with terms and conditions to minimize the take of the subject species.

Questions regarding this letter should be directed to Scott Carlon of my staff in the Oregon State Branch Office at (503) 231-2379.

Sincerely,

Michael R Crouse
for William Stelle, Jr.
Regional Administrator

Enclosure

Endangered Species Act -Section 7

Consultation

BIOLOGICAL OPINION

East Beaver Creek Road Repair (Permit ID. No. 1999-1074)
Tillamook County, Oregon

Agency: U.S. Army Corps of Engineers, Portland District

Consultation Conducted By: National Marine Fisheries Service, Northwest Region

Date Issued: July 27, 2000

Refer to: OSB2000-0167

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I. BACKGROUND

During the winters of 1998 and 1999, three sections of roadway along East Beaver Creek were damaged by high flows. East Beaver Creek is a tributary to Beaver Creek which flows to the Nestucca River in Tillamook County, Oregon. The road is currently the only access route to Federal, state, and private lands within the East Beaver Creek watershed. The Tillamook County Public Works Department (County) is proposing to repair the damaged sections of road. A meeting and field review of the action area was conducted on March 1, 2000. The meeting was attended by Tillamook County, U.S. Forest Service, Oregon Department of Fish and Wildlife (ODFW), U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and National Marine Fisheries Service. Roadway repair methods, stream habitat protection, and surveys for an alternate route were discussed. The Hebo Ranger District of the Siuslaw National Forest conducted a survey in an attempt to find an upland route. However, it was determined that upland slopes were too steep to safely build and maintain a new road. Accordingly, the County is seeking authorization from the Corps to allow for roadway repair work below the ordinary high water mark of East Beaver Creek.

The NMFS received a May 9, 2000, letter from the Corps requesting formal consultation on proposed issuance of a permit under section 404 of the Clean Water Act to allow the applicant to complete the roadway repairs. NMFS received the Corps' request for formal consultation on May 11, 2000.

II. PROPOSED ACTION

The County is proposing to conduct roadway repairs at milepost 3.5, 4.0, and 4.5. Work at each site would vary but generally consists of diverting the stream away from the road to allow construction in the dry. A description of construction activities for each segment follows.

Milepost 3.5

This segment of road is located at the base of a steep slope and the stream. A logjam in the main channel has forced flow onto a 400-foot section of roadway, eroding away the road at this site. The County would begin by cutting an existing 12-long by 2-foot diameter log from the 400-foot eroded section and then cutting a path through the logjam and diverting flow back to the main channel. One log cut from the jam would be used to divert flow to the main channel. The County would begin repairing the eroded section by laying a 2-foot layer of 10-inch minus pit-run rock with fines to form the road base. A 1-foot layer of 5-inch minus pit-run rock containing a greater volume of fines would be placed over the base and compacted. Lastly, a layer of 1-foot diameter riprap would be placed along the edge of the road. Fill volumes would be approximately 900 cubic yards (cy) of roadway material and roughly 90 cy of riprap.

Logs cut from the jam in the main channel would be left in place along the margins of the stream. The use of material with a higher percentage of compacted fines is believed to make the surface more erosion resistant and reduce the need for future repairs.

Milepost 4.0

The road at this location is cut into the hillside above the creek. A debris jam consisting primarily of

one large log and a large amount of debris forced flow toward the road causing the slope that supported the road to fail. Repairs would involve cutting a portion of the debris from the jam to open the channel and diverting the stream back to the cleared channel. The large log would be left in place as would some of the debris. The section to be repaired is roughly 120 feet long and 21 feet wide. The repairs would require roughly 480 cy of pit-run rock and 60 cy of 2- to 3-foot diameter riprap.

Milepost 4.5

Roughly one-third of the travel lane for a distance of 90 feet has been eroded from this section of road. The County would reconstruct the slope that supported the road by placing approximately 600 cy of pit-run rock and roughly 140 cy of riprap. The existing 18-inch diameter culvert would be replaced with one 24 inches in diameter and a culvert cut in half down its length would be placed on the slope to carry runoff to the stream. The County anticipates completing the work from the road but may need to construct an access road down the slope to place riprap at the base.

III. BIOLOGICAL INFORMATION AND CRITICAL HABITAT

Although there are currently limited data to assess population numbers or trends, NMFS believes that all coho salmon stocks comprising the OC coho salmon ESU are depressed relative to past abundance. The status and relevant biological information concerning OC coho salmon are well described in the proposed and final rules from the Federal Register (July 25, 1995, 60 FR 38011; and May 6, 1997, 62 FR 24588, respectively), and Weitkamp *et al.* (1995).

Abundance of wild coho salmon spawners in Oregon coastal streams declined during the period from about 1965 to roughly 1975 and has fluctuated at a low level since that time (Nickelson *et al*. 1992). Spawning escapements for this ESU may be at less than 5% of abundance in the early 1900s. Contemporary production of coho salmon may be less than 10% of the historic production (Nickelson *et al*. 1992). Average spawner abundance has been relatively constant since the late 1970s, but preharvest abundance has declined. Average recruits-per-spawner may also be declining. The OC coho salmon ESU, although not at immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp *et al*. 1995).

Timing of adult coho salmon river entry is largely influenced by river flow. Coho salmon normally wait for freshets before entering rivers. In the Nestucca River, adults return between October and January with peak upstream migration usually occurring in October when the fall rains return. OC coho salmon spawn in the Nestucca River basin between mid-November and mid-December with peak spawning occurring in late November to early December. Juvenile coho salmon rear for 1 year in fresh water before migrating to the ocean. Juvenile OC coho salmon migrate out of the Nestucca River basin as smolts between mid-March and mid-June. Peak outmigration typically occurs in late April to early May (Weitkamp *et al*. 1995).

Critical habitat for OC coho salmon includes Oregon coastal river basins (freshwater and estuarine areas) between Cape Blanco and the Columbia River. Freshwater critical habitat includes all waterways, substrates, and adjacent riparian areas—areas adjacent to a stream that provides the following functions: shade, sediment, nutrient or chemical regulation, streambank stability,

and input of large woody debris or organic matter—below longstanding, natural impassable barriers (i.e., natural waterfalls in existence for at least several hundred years) and several dams that block access to former coho salmon habitat. The proposed action would occur in designated critical habitat for OC coho salmon.

IV. EVALUATING PROPOSED ACTIONS

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: (1) defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent measures available. For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of OC coho salmon under the existing environmental baseline.

A. Biological Requirements

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess to the current status of the listed species, NMFS starts with the determinations made in its decision to list OC coho salmon for ESA protection and also considers new data available that is relevant to the determination (Weitkamp *et al.* 1995).

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful spawning, rearing, and migration. The current status of the OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed and, in some cases, their status may have worsened.

B. Environmental Baseline

The environmental baseline is an analysis of the effects of past and on-going human and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed where actions described in this opinion lead to additional activities or affect ecological functions contributing to stream degradation. For this consultation, the action area includes East Beaver Creek at the uppermost road repair site (milepost 4.5) downstream to its confluence with Beaver Creek near Hemlock, Oregon.

The bulk of production for the OC coho salmon ESU is skewed to its southern portion where the coastal lake systems (e.g. Tenmile, Tahkenitch, and Siltcoos Basins) and the Coos and Coquille Rivers are more productive. The proposed action area is located in the northern half of the ESU where production is more depressed and habitat in the action area is underseeded. Most of the precipitation in the Nestucca Basin occurs as rain with roughly 80% falling from October through March. East Beaver Creek is on Oregon Department of Environmental Quality's 303(d) list of water quality limited streams for sedimentation and habitat modification. Land ownership within

the action area is a mixture of private and public timber lands and non-timber private property. Land use is largely dairy and timber production. OC coho salmon use the proposed action area for spawning, rearing, and migration.

V. ANALYSIS OF EFFECTS

A. Effects of Proposed Action

Large Wood and Debris-Jams. Large wood in stream channels helps retain coarse sediment which maintains spawning habitat; provides long term nutrient storage and substrate for aquatic invertebrates; increases retention of allochthonous inputs and water; increases habitat complexity and flow heterogeneity; and provides refugia for aquatic organisms during both high and low flow periods (Spence *et al*. 1996; Rhodes *et al*. 1994). Large debris jams, such as those in East Beaver Creek, store fine sediment and organic materials, reducing their rate of transport downstream. Furthermore, debris jams protect downstream reaches from rapid changes in sediment loading (Spence *et al*. 1996). OC coho salmon take full advantage of large wood and debris jams in Oregon coastal streams. Young coho salmon move into side channels, sloughs, and beaver ponds during the winter and are typically found close to large woody debris, roots, overhanging brush, or undercut banks (Meehan and Bjornn 1991; Bearner and Henderson 1998). These are the features that have been created in East Beaver Creek at the project sites by the existing large wood and debris jams.

As stated earlier, some of the large wood and debris would be left in the stream. The largest portion of existing large wood and debris to be removed from the stream would be at the milepost 3.5 site. The debris would be cleared from the center of the stream and placed along both sides of the channel's perimeter. Removing this debris from the stream center would eliminate much of the beneficial function described in the proceeding paragraph. However, it would not be lost from the system entirely as this would allow the stream during a high flow event to recruit the wood back to the system. In addition, placing it along the perimeter could help to attenuate erosion and provide some cover for juvenile OC coho salmon during high flow events.

At the milepost 4.0 site, enough debris would be cleared to allow flow to resume in the main channel. The large log would not be cut or removed. Some function would be reduced as the channel meander would be eliminated and some woody debris removed from the system. At the milepost 4.5 site, debris would again be cleared and flow diverted back to the main channel. Again, some function (as described above) would be reduced, but not entirely as some of the large wood and debris would be left in place.

In-water work would be required to clear debris and divert the stream. However, heavy equipment would not enter the stream. Junvenile OC coho salmon may be present during these activities. Fish using the debris-jams targeted for partial removal would likely be scared out of this cover and forced to find shelter elsewhere in the stream.

Bank Revetment. Roughly 2,330 cy total fill would be placed, of which approximately 290 cy (12%) would be 2- to 3-foot diameter riprap and the remainder pit-run fill to rebuild the road prism. At mileposts 4.5 and 4.0, the riprap would be placed to protect the road prism from future high flow events and would not be in immediate contact with the stream. Riprap would likely line the edge of the stream for a short distance at milepost 3.5.

Fixed structures provide the most reliable means of bank stability. However, Bearner and Henderson (1998) found that riprap results in a decline in fish densities and Knudsen and Dilley (1987) found that juvenile coho salmon densities decreased, especially in small streams, in areas where the bank had been riprapped. The continued use of riprap in Oregon coastal watersheds may be resulting in an overall cumulative loss of aquatic habitat, especially in smaller streams.
The use of riprap for the subject action is largely ameliorated by the fact that at two of the sites, the riprap would be located off the stream. Riparian vegetation would be able to reestablish between the road and the stream.

Riprap installation would occur in the dry with the exception of the milepost 3.5 site where some in-water work may be required; although work would occur during summer low flows and therefore may occur in the dry as well. In addition, riprap installation at this site would occur after the stream has been diverted back to its main channel. Therefore, juvenile OC coho salmon will likely have moved out of this area prior to riprap installation.

Road Construction. The greatest impact on the subject reach of East Beaver Creek would be the continued presence of the existing road which follows the stream corridor. In general, impacts to streams from roads located adjacent to the channel may include significant increases in sediment delivery, elevated erosion, disruption of subsurface flows, increased peak flows, reduced shading, and reduced recruitment of large wood to the stream channel (Rhodes *et al*. 1994; Furniss *et al*. 1991). Furthermore, placement of roads near streams typically requires construction of revetments, which simplifies stream channels, alters hydraulic processes, and precludes natural channel adjustments (Spence *et al*. 1996); these effects are evident in East Beaver Creek.

Placement of the fill (roughly 2,040 cy) to build the road prism would not require in-water work. Best management practices would be followed, along with standard permit conditions required by the Corps and the state of Oregon. These would include protective measures for erosion control, hazardous material storage and handling, spill prevention, and construction staging. Work would be accomplished during the late summer/early fall time period when rain events are least frequent.

B. Effects on Critical Habitat

The NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features of designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. The proposed action area would occur within OC coho salmon designated critical habitat.

As stated earlier, the presence of the roadway adjacent to the stream corridor may be the most persistent impact on East Beaver Creek. It likely affects critical habitat in the long-term by restricting natural channel forming processes, reducing large wood recruitment, altering stream hydrology, and reducing allocthonous input. However, reconstructing the eroded sections of road would not worsen existing aquatic habitat conditions in East Beaver Creek, and stabilizing the eroding sections of roadway is expected to eliminate a chronic source of sediment.

Partial removal of the debris jams would result in a reduction of cover for juvenile OC coho salmon, macroinvertebrate species that they prey upon, and would result in short term releases of sediment. However, a portion of the woody debris and large logs would be left in place, therefore retaining some of its function for channel formation and as habitat for OC coho salmon.

C. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

The NMFS is not aware of any future new (or changes to existing) non-Federal activities within the action area that would cause greater impacts to listed species than presently occurs. The NMFS assumes that future private and state actions will continue at similar intensities as in recent years.

VI. CONCLUSION

Based on the available information, NMFS has determined that the proposed action is not likely to jeopardize the continued existence of OC coho salmon or adversely modify proposed critical habitat. In reaching this conclusion, NMFS determined that the survival and recovery of OC coho salmon would not be appreciably diminished by the proposed action. In summary, our conclusion is based on the following factors: (1) All in-water work would be completed during the later half of ODFW's designated in-water work window of July 1-September 15, which would preclude the presence of migrating and spawning OC coho salmon; (2) the clearing of debris jams would be limited to only removing what would be necessary to allow flow to return to its preexisting channel, therefore retaining much of the woody debris in the system; (3) with the exception of one large downed tree that must be removed to allow reconstruction of the roadway; other large woody debris would be left in place; (4)

chronic sediment source areas would be stabilized; (5) implementation of standard erosion control measures would minimize the potential for short-term adverse sediment effects from construction activities. Therefore, the proposed action is expected to restore or maintain properly functioning OC coho salmon rearing habitat conditions within the action area.

VII. CONSERVATION RECOMMENDATIONS

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. NMFS has no additional conservation recommendations regarding the action addressed in this opinion.

VIII. REINITIATION OF CONSULTATION

Reinitiation of consultation is required: (1) If the action is modified in a way that causes an effect on the listed species that was not previously considered in the biological assessment and this biological opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 C.F.R. 402.16).

IX. REFERENCES

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X. INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. If necessary, it also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

A. Amount or Extent of Take

The NMFS anticipates that the proposed action covered by this biological opinion has more than a negligible likelihood of incidental take of juvenile OC coho salmon resulting from direct disturbance of juveniles that may be rearing within the debris jams targeted for partial removal, and short term pulses of suspended sediment released during debris-jam removal. Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long term effects on the species' population levels.

Therefore, even though NMFS expects some low level of incidental take to occur due to the action

covered by this biological opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as this, the NMFS designates the expected level of take as unquantifiable. Based on the information provided, NMFS anticipates that an unquantifiable but low level of incidental take could occur as a result of the action covered by this biological opinion. Moreover, the small amount of take that may occur is expected to be non-lethal.

B. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. To minimize the amount and extent of incidental take from construction activities within the proposed action area, measures shall be taken to limit the duration and extent of in-water work, and to time such work to occur when the impacts to fish are minimized.

2. To minimize the amount and extent of incidental take from construction activities in or near watercourses, effective erosion control measures shall be developed and implemented to minimize the movement of soils and sediment both into and within watercourses and to stabilize bare soil over both the short term and long term.

3. To minimize the amount and extent of incidental take from construction activities in or near watercourses, effective pollution control measures shall be developed and implemented to minimize the potential for hazardous materials from entering the watercourse.

C. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. In-water work:

    a All work shall be completed within the ODFW recommended in-water work period of July 1 to September 15. No in-water work shall take place outside this period without prior written authorization from the Corps (in consultation with ODFW and NMFS).

    b. Alteration or disturbance of the stream banks and existing riparian vegetation shall be minimized.

    c. Rock shall be individually placed in such a manner as to produce an *irregularly* contoured face to provide velocity disruption. No end dumping shall be allowed.

2. Erosion Control

a. Temporary erosion and sediment controls shall be used on all exposed slopes during any hiatus in work exceeding 7 days. Biobags, weed-free straw bales and loose straw may be used for temporary erosion control.

b. Exposed soil surfaces shall be permanently stabilized at finished grade immediately upon completion of disturbance. Permanent stabilization shall include grass seeding and mulching.

c. All erosion control devices shall be inspected during construction to ensure that they are working adequately.

d. Silt fences or other detention methods shall be installed as appropriate to reduce the amount of sediment entering aquatic systems.

e. A supply of erosion control materials (e.g., straw bales and clean straw mulch) shall be kept on hand to respond to sediment emergencies.

f. Material removed during excavation shall only be placed in locations where it cannot enter sensitive aquatic resources. Conservation of topsoil (removal, storage and reuse) shall be employed.

3. Pollution Control

a. No pollutants of any kind (i.e., petroleum products) shall come in contact with the area below the ordinary high water.

b. All equipment shall be fueled and cleaned off-site in an appropriate upland area more than 150 feet from any waterway.

c. Project actions shall follow all provisions of the Clean Water Act (40 CFR Subchapter D) and Oregon Department of Environmental Quality's (ODEQ) provisions for maintenance of water quality standards (OAR Chapter 340, Division 41). Toxic substances shall not be introduced above natural background levels in waters of the state in amounts which may be harmful to aquatic life.

d. The Contractor shall develop an adequate, site-specific Spill Prevention and Countermeasure or Pollution Control Plan (PCP), and is responsible for containment and removal of any toxicants released. The PCP shall include the following:

i. A site plan and narrative describing the methods of erosion/sediment control to be used to prevent erosion and sediment for contractor's operations related to disposal sites, borrow pits operations, haul roads, equipment storage sites, fueling operations and staging areas.
ii. Identify hazardous products or materials to be used. Include how they will be

handled, monitored, inventoried, and stored.

iii. Provide a spill containment and control plan that includes: Notification procedures; specific clean up and disposal instructions for different products; quick response containment and clean up measures which will be available on site; proposed methods for disposal of spilled materials; and employee training for spill containment.

e. No surface application of fertilizer shall be used within 50 feet of any aquatic resource as part of this permitted action.